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## Document Listing

Document	Selected Pages	Page Range	Copies
US005552169	7	1 - 7	1
US004723953	7	1 - 7	1
US004293609	7	1 - 7	1
US004145464	9	1 - 9	1
US003888248	7	1 - 7	1
Total (5)	37	-	-

Document ID	Title
US 20020058141 A1	Electroconductive plate-like b
US 20020035354 A1	Absorbent barrier structures h
US 20020013560 A1	Absorbent structure with integ
US 20010055680 A1	ROOFING MATERIAL

DOCUMENT-IDENTIFIER: US 20020013560 A1

TITLE: Absorbent structure with integral vapor transmissive moisture barrier

[0056] For bonding the fibers specifically, and for structural integrity of the unitary absorbent core generally, water-based latex binders may be used. Alternatively, or in combination with a latex binder, thermoplastic binding material (fibers or powders) may be used for bonding upon heating to the melting point of the thermoplastic binding material. Suitable thermoplastic binding material includes thermoplastic fibers, such as bicomponent thermoplastic fibers ("bico"). Preferred thermoplastic binding fibers provide enhanced adhesion for a wide range of materials, including synthetic and natural fibers, particles, and synthetic and natural carrier sheets. An exemplary thermoplastic bico fiber is Celbond Type 255 Bico fiber from KoSa.



US 20020013560A1

(19) United States

(12) Patent Application Publication  
Erspamer et al.(10) Pub. No.: US 2002/0013560 A1  
(43) Pub. Date: Jan. 31, 2002(54) ABSORBENT STRUCTURE WITH  
INTEGRAL VAPOR TRANSMISSIVE  
MOISTURE BARRIERof provisional application No. 60/252,544, filed on  
Nov. 22, 2000.

## Publication Classification

(75) Inventors: John P. Erspamer, Lakeland, TN (US);  
Brian E. Boehmer, Bartlett, TN (US);  
John Perry Baker, Memphis, TN (US);  
David W. Wu, Bartlett, TN (US)(51) Int. Cl.<sup>7</sup> A61F 13/15; A61F 13/20  
(52) U.S. Cl. 604/381; 604/368; 604/369

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## (57) ABSTRACT

(73) Assignee: BKI HOLDING CORPORATION

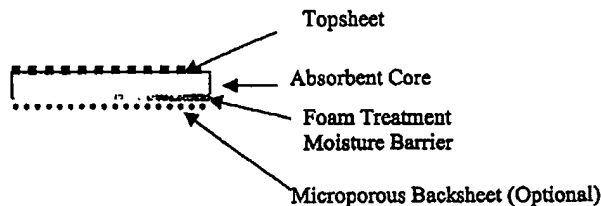
(21) Appl. No.: 09/834,179

(22) Filed: May 11, 2001

## Related U.S. Application Data

(63) Non-provisional of provisional application No.  
60/204,418, filed on May 12, 2000. Non-provisional

Disclosed is a unitary absorbent core having a basis weight of about 75 grams per square meter or greater, including a fibrous absorbent layer having an upper fluid receiving surface and a lower surface with a hydrophobic vapor-transmissive moisture barrier integral with the lower surface of the absorbent layer. Also disclosed is a process for the production of the unitary absorbent core, including the steps of (a) producing a fibrous absorbent layer having upper and lower surfaces, and (b) applying to the lower surface of the fibrous absorbent layer a hydrophobic material which at least partially coats at least some of the fibers of the lower surface of the absorbent layer.



DOCUMENT-IDENTIFIER: US 5135787 A

aqueous liquid absorbing pad

----- KWIC -----

The porous, hydrophilic outer fabric layers 12, 14 of water-absorbing pad 10 fabric perform three functions; namely, (1) expandably contain the SAP-containing web, (2) to wick and help distribute aqueous fluids over the entire area of the absorbing pad and (3) to facilitate sealing of the cut edges. The expandability should be commensurate with the expected expansion of the SAP-containing web. Various nonwoven fabrics can perform these functions. A particularly preferred outer fabric is a nonwoven fabric made from polyester homopolymer fibers and polyester copolymer (binder) fibers and/or a binder resin, the fabric surface having been treated with a wetting agent. The binder fiber and/or resin ensures adequate bonding of outer fabric 12, 14 to the SAP-containing web 16. The wetting agent aids in the wicking and distribution of aqueous liquids in pad 10. If most of the fibers of the outer layer fabric are not hydrophilic (e.g., polyesters, polyolefins), as in the preferred nonwoven outer fabric, then hydrophilic fiber, for example of wood-pulp, cellulose acetate or the like, can be incorporated into the outer fabric or the fabric can be treated with a wetting agent (e.g., cationic, anionic, nonionic or amphoteric surfactant) to impart the desired hydrophilicity. Conventional criteria and methods can be used for selecting and applying such materials to the fabric.

US005135787A

[11] Patent Number: 5,135,787

[45] Date of Patent: Aug. 4, 1992

Bair

[45] Date of Patent: Aug. 4, 1992

- [54] ICED FOOD SHIPPING CONTAINER WITH AQUEOUS LIQUID ABSORBING PAD**

- [75] Inventor: Thomas L. Bahr, Wilmington, Del.

- [73] Assignee: E. I. Du Pont de Nemours and Company, Wilmington, Del.

- [21] Appl. No. 867,232

- [22] Filed: Aug. 14, 1990

- [31] Int. Cl. F16L 3/02  
[32] U.S. Cl. 428/36.1; 428/74.

- [58] Field of Search \_\_\_\_\_ 428/36.1, 283, 74, 76,  
428/283, 198, 219, 286, 287, 373, 913, 402, 407,  
426/124, 129, 109, 393, 398; 220/20.5; 206/204

- ## [36] References Cited

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| 3,669,103 | 6/1972  | Harper et al. | 125/156 |
| 3,670,721 | 6/1972  | Harmon        | 128/156 |
| 4,100,324 | 7/1978  | Anderson      | 428/326 |
| 4,295,987 | 10/1981 | Parku         | 252/194 |
| 4,341,215 | 7/1982  | Eldridge      | 128/285 |
| 4,429,001 | 1/1984  | Kolpin et al. | 428/283 |
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| 4,654,038 | 3/1987  | Sakurai         | 604/368 |
| 4,654,039 | 1/1987  | Brundt et al.   | 604/368 |
| 4,784,892 | 11/1987 | Stuey et al.    | 428/177 |
| 4,824,598 | 9/1988  | Stuey et al.    | 428/177 |
| 4,847,534 | 6/1989  | Nest            | 604/368 |
| 4,869,387 | 9/1989  | Peracino        | 220/431 |
| 4,884,509 | 12/1989 | Marmoreo        | 604/367 |
| 4,897,531 | 1/1990  | Le-Khac         | 604/368 |
| 4,929,480 | 5/1990  | Middifft et al. | 428/135 |
| 4,940,631 | 7/1990  | Rhodes et al.   | 428/135 |

### FOREIGN PATENT DOCUMENTS

84306757.1 7/1988 European Pat. Off.

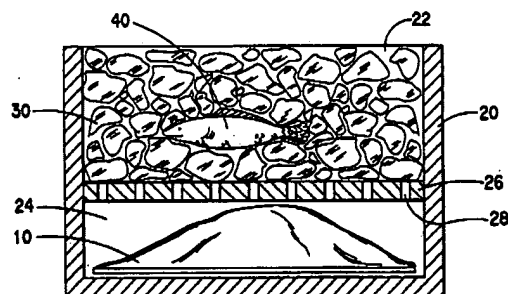
**Primary Examiner**—Ellis P. Robinson

Assistant Examiner—J. Weddingt.

**ABSTRACT**

An isced food shipping container and a novel aqueous liquid absorbing pad for use therein are provided. The pad comprises superabsorbent polymer particles distributed in a polyester carded web contained between hydrophilic fabric outer layers. The pad can absorb more than 100 times its dry weight in water and other aqueous liquids that form during isced food shipment.

**3 Claims, 1 Drawing Sheet**



Document ID	Title
78 US 4758466 A	Foam-fiber composite and pro
79 US 4722857 A	Reinforced non-woven fabric
80 US 4706338 A	Apparatus for forming fibre w
81 US 4548856 A	Method for forming soft, bulky

US-PAT-NO: 4706338

DOCUMENT-IDENTIFIER: US 4706338 A

Forming fibre webs

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#### Abstract Text - ABTX (1):

An apparatus for forming fibre webs including a first component and a second component in the form of two textile fibres differentiated by their average fibre length or a textile fibre and wood pulp, said apparatus including a card means having a discharge zone, means for feeding said second component to said discharge zone, and means for condensing the fibres in said discharge zone whereby a highly uniform fibre web is obtained.

#### Brief Summary Text - BSTX (6):

According to the present invention, this object is obtained by providing an apparatus for forming fibre webs including first and second components in the form of at least two textile fibres differentiated by their average fibre lengths or a textile fibre and wood pulp, characterized by comprising card means having a discharge zone, means for feeding said second component to said discharge zone and means for condensing the mixed fibres in said discharge zone, whereby a highly uniform fibre web is obtained.

#### Detailed Description Text - DETX (1):

Referring now more particularly to the drawing, one embodiment of an apparatus for forming heterogeneous fibre webs at elevated production velocities basically comprises a high velocity card means 2 and a pulp mill 4 coupled so as to deposit intimately mixed textile fibres and wood pulp on a conveyor belt 6 to form a fibre web 8.

## United States Patent [19]

Anspach

[11] Patent Number: 4,706,338

[45] Date of Patent: Nov. 17, 1987

### [54] APPARATUS FOR FORMING FIBRE WEBS

[56]

#### References Cited

##### U.S. PATENT DOCUMENTS

1,084,592 7/1931 Williams ..... 18/145.5 X  
3,414,180 10/1971 Newman ..... 18/322 X  
4,473,371 10/1984 Lougrea et al. .... 18/145.5 X  
4,519,301 3/1985 Toos ..... 18/145.5 X

##### FOREIGN PATENT DOCUMENTS

0852162 7/1964 United Kingdom ..... 18/104 R

Primary Examiner—Louis E. Rimmelt

[75] Inventor: Jean M. H. Anspach, S6b Jost dos Campos, Brazil

[73] Assignee: Clitopea, New Brunswick, N.J.

[21] Appl. No.: 839,019

[22] Filed: Mar. 13, 1986

[30] Foreign Application Priority Data

Mar. 13, 1985 (BR) Brazil ..... 8501093

[51] Int. Cl. .... D01G 15/40; D01G 15/46

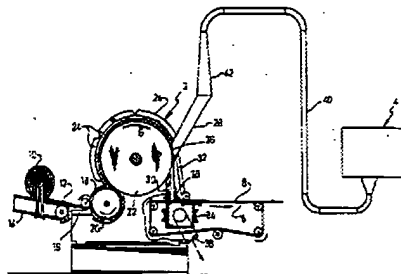
[52] U.S. Cl. .... 18/103; 19/106 R; 19/145.5; 19/322; 19/304

[53] Field of Search ..... 19/145.5, 145.5, 302, 19/106 R, 103, 304

### [57] ABSTRACT

An apparatus for forming fibre webs including a first component and a second component in the form of two textile fibres differentiated by their average fibre length or a textile fibre and wood pulp, said apparatus including a card means having a discharge zone, means for feeding said second component to said discharge zone, and means for condensing the fibres in said discharge zone whereby a highly uniform fibre web is obtained.

4 Claims, 1 Drawing Figure





	Document ID	Title
19	US 6395957 B1	Dual-zoned absorbent webs
20	US 6358752 B1	Liposome-enhanced test device
21	US 6270873 B1	Absorbent pad
22	US 6162327 A	Multifunctional tissue paper p...

US-PAT-NO: 6270873

DOCUMENT-IDENTIFIER: US 6270873 B1



----- KWIC -----

## Detailed Description Text - DETX (10):

In FIG. 3, the bottom sheet 13 is a heavier weight heat fusible paper which is a blend of cellulosic and thermo plastic fibre and can have a weight of between 5-100 g per square meter. Typically, the paper has 22% thermo plastic fibre and 78% cellulose fibre and is resin bonded to have a good wet strength. The paper has a good wetting and wicking action to assist in drawing fluids to the superabsorbent polymer.



US006270873B1

(12) **United States Patent**  
Darnett(30) Patent No.: **US 6,270,873 B1**  
(45) Date of Patent: **Aug. 7, 2001**(54) **ABSORBENT PAD**(56) **References Cited**

(75) Inventor: Rodney Darnett, Queensland (AU)

**U.S. PATENT DOCUMENTS**

(73) Assignee: Sealed Air Corporation (US), Saddle Brook, NJ (US)

3,156,402	* 11/1984	DePels	229/50
4,215,811	6/1981	Nglet	206/004
5,274,863	* 12/1994	Talabani	1644
5,789,075	* 8/1998	Ischra	426,513

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

**FOREIGN PATENT DOCUMENTS**

(21) Appl. No.: 09/125,615

4215153	1/1994	(AU)
1157353	8/1995	(AU)
0 353 334 A1	2/1995	(EP)
WO 90/3332	4/1990	(WO)

(22) PCT Filed: Feb. 19, 1997

(86) PCT No.: PCT/AU97/00086

\* cited by examiner

§ 371 Date: Sep. 2, 1998

§ 102(e) Date: Sep. 2, 1998

(57) PCT Pub. No.: WO97/30909

PCT Pub. Date: Aug. 28, 1997

(30) **Foreign Application Priority Data**

Feb. 22, 1996 (AU) P08348

Mar. 27, 1996 (AU) P08349

(51) Int. Cl. B31B 1/06

(52) U.S. Cl. 418/76

(55) Field of Search 428/76, 76, 62/259.3; 604/358, 607/114

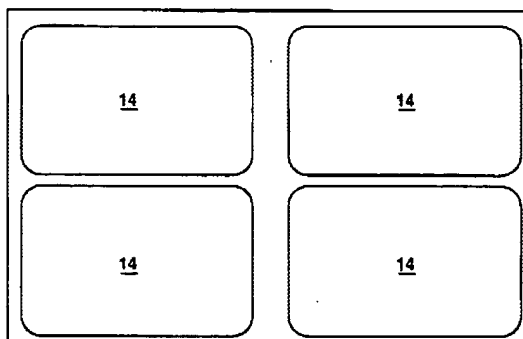
Primary Examiner—Alexander S. Thomas

(74) Attorney, Agent, or Firm—Rupert B. Husley, Jr.

(57) **ABSTRACT**

An absorbent pad has a top sheet and a bottom sheet, the sheets being joined to form at least one cell, an absorbent located within the cell, at least one sheet being formed of a liquid impermeable material containing microperforations. The top and/or bottom sheets may comprise multiple layers of different materials, e.g., plastics, non-woven fabrics, paper.

21 Claims, 19 Drawing Sheets



US-PAT-NO: 6270873

DOCUMENT-IDENTIFIER: US 6270873 B1

TITLE: Absorbent pad

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Detailed Description Text - DETX (10):

In FIG. 3, the bottom sheet 13 is a heavier weight heat fusible paper which is a blend of cellulosic and thermo plastic fibre and can have a weight of between 5-100 g per square meter. Typically, the paper has 22% thermo plastic fibre and 78% cellulose fibre and is resin bonded to have a good wet strength. The **paper has a good wetting and wicking** action to assist in drawing fluids to the superabsorbent polymer.

US-PAT-NO: 5552169

DOCUMENT-IDENTIFIER: US 5552169 A

TITLE: Food package adapted for microwave or other cooking

----- KWIC -----

Claims Text - CLTX (25):

19. An absorbent pad according to claim 14 wherein said lower layer is formed of wet strength tissue **paper for increased permeability and wicking** of liquid into said pad to increase the rate of absorption thereof.

US-PAT-NO: 4723953

DOCUMENT-IDENTIFIER: US 4723953 A

TITLE: Absorbent pad

----- KWIC -----

Detailed Description Text - DETX (5):

The wicking layer 12 may be of paper toweling and the like in which a liquid will migrate very rapidly to the marginal edges of the air bubble layer 10 and over the edges 14 to a lower absorbent layer.

Detailed Description Text - DETX (9):

As best seen in FIG. 4, the preferred embodiment of the present invention comprises an uppermost layer 28 of Pellon. The next layer 30 is cellulose tissue. The wicking layer 12 is of paper toweling which completely surrounds the air bubble layer 10 having a cushion function. The absorbent layer 15 is of cotton wadding and the bottom layer 16 is of plastic.

Detailed Description Text - DETX (10):

In use, the embodiment shown in FIG. 4 receives liquids via the cellulose tissue layer 30 which transfers the excess liquid to a Pellon layer 28. The excess liquid from layer 30 is delivered to the Pellon layer 28 and then to the upper paper towel wicking layer 12 which wicks some of the liquid around the edges 14 of the air bubble layer 10 while the bulk of the liquid is delivered by the upper wicking layer 12 to the air bubble layer 10. The air bubbles 22 projecting upwardly present a barrier pattern to the incoming liquid and breaks the liquid stream into a multitude of small streams or riverlets which migrate to the edges 14 and discharge into the lower wicking layer 12a for even discharge across the surface of the absorbent layer 15. The bottom layer 16 prevents liquids from escaping the absorbent layer.



4.293.609

DOCUMENT-IDENTIFIER: US 4293609 A

Times New Roman 12

----- KWIC -----

The moisture content of the laminates must be reduced from their normal content of about 14% moisture to less than 8% and preferably in the range from 1-6%. If the moisture content is greater than about 8%, there is substantially no crushing or shattering of the film in the subsequent cracking zone since the film remains flexible. If the moisture content is less than 1% moisture, there is substantial tearing or rupturing of the wicking substrates such as the fibers of the paper tissue mats.

**CROSS REFERENCE TO RELATED APPLICATION**

## BACKGROUND OF THE INVENTION

## BACKGROUND OF THE INVENTION

It is known from U.S. Pat. No. 3,669,822 dated June 13, 1972 that tissue/polyethylene film/tissue laminates can be crimped or embossed to give an improved hand or flexibility or tissue-like feel.

In U.S. Pat. Nos. 4,117,184 and 4,176,667, it is disclosed that tissue/aerated absorbent film/tissue laminates can be prepared.

While the laminates disclosed in U.S. Pat. No. 4,117,184 have good absorption rates for water, urine, and other body fluids or exudates they have a tendency to become brittle and inflexible in atmospheres of low relative humidity. The result is an unacceptable rattle sound when the laminate is flexed and the laminate has a stiff or board like feel.

## SUMMARY OF THE INVENTION

It now has been found that laminates comprising a central crushed film of a tightly crosslinked or water-swallowable hydrophilic polymer combined with wicking substrates can be prepared which are both highly absorbent and flexible at both high and low relative humidity.

The present invention is thus a flexible hydrophilic absorbent laminate which has a rapid absorption rate and is flexible at low and high relative humidities which coexist.

(a) a central, substantially discontinuous and crushed film consisting of a water-swellable hydrophilic poly-

(b) a layer of wicking substrates bonded to both sides of said film.

While the absorbent film can be a solid film as in U.S. Pat. No. 4,076,673, dated Feb. 28, 1978, it is preferably

A further aspect of the present invention is a method of making the above laminae which comprises the

of realizing the above laminates which comprises the steps of: reducing the moisture content of a laminate of a lightly crosslinked hydrophilic polymer film with

wicking substrates to less than 1% by weight) by passing said laminate through a drying zone, and passing said dried laminate through a crushing or cracking zone.

dried laminate through a crushing or cracking zone wherein said film is crushed into a plurality of pieces which remain substantially laminated to said substrates.

The laminates are useful to make absorbent articles such as baby diapers, adult diapers for incontinent patients, and the like using the laminates and for articles

<sup>1</sup> bents, and the like since the laminates and/or articles readily absorb aqueous solutions such as blood, urine, and other body exudates. The absorbent articles contain

one or more layers of wicking substrates such as non-woven fiber mats, porous wadding, or cellulose fluff together with a water impermeable bottom sheet such as polyethylene and a water permeable top sheet such as a non-woven fiber mat.

### BRIEF DESCRIPTION OF THE DRAWING

The drawing is a photographic reproduction of one species of the present invention.

FIG. 1 shows a view taken with a scanning electron microscope of the laminate with the top layer of paper

tissue fibers partially pulled back to expose the crushed film underneath. The bottom layer of paper tissue fibers is clearly evident beneath the crushed film.

FIG. 2 is an enlarged view of the center portion of FIG. 1 showing in greater detail the craters and bubbles in the aerated film and the bonding of the film to the glass.

### DETAILED DESCRIPTION

The water-swellable or lightly crosslinked hydrophilic polymers useful in this invention can be any of the known hydrophilic polymers that are capable of being formed into a film. Examples of such polymers are disclosed in U.S. Pat. Nos. 3,997,484; 3,926,891; 3,925,099; 4,090,013; and 4,180,352.

The preferred hydrophilic polymers useful in this invention are polyelectrolytes and must be essentially water soluble in the salt form. Examples of useful polyelectrolytes include ammonium or alkali metal salts of homopolymers of acrylic or methacrylic acid and copolymers with one or more ethylenically unsaturated monomers.

Preferably the polyelectrolyte is a partially saponified polyacrylate polymer. The polymer before saponification is the result of reacting together a mixture of monomers which comprises (1) 30 to 92 percent by weight of an alkyl acrylate wherein the alkyl group has from 1 to 10 carbon atoms, an alkyl methacrylate wherein the alkyl group has from 4 to 10 carbon atoms, or mixtures thereof; (2) 8 to 70 percent by weight of an olefinically unsaturated carboxylic acid, and (3) 0 to 12 percent by weight of an omega hydroxyalkyl acrylate wherein the hydroxyalkyl groups have from 1 to 4 carbon atoms.

Examples of useful alkyl acrylates include methyl acrylate, ethyl acrylate, propyl acrylate, butyl acrylate, and hexyl acrylate. Examples of useful alkyl methacrylates include methyl methacrylate, ethyl methacrylate, hexyl methacrylate, octyl methacrylate and decyl methacrylate. Examples of useful omega hydroxyalkyl acrylates include 2-hydroxyethyl acrylate, hydroxymethyl acrylate, 3-hydroxypropyl acrylate and 4-hydroxybutyl

The olefinically unsaturated carboxylic acids useful in this invention are mono or polycarboxylic acids. Examples of monocarboxylic acids include acrylic acid, methacrylic acid, crotonic acid, and isocrotonic acid. Examples of polycarboxylic acids include maleic acid, fumaric acid, and itaconic acid.

The foregoing polyacrylates are then dissolved in an aqueous alkali metal hydroxide solution. The amount of hydroxide solution employed is sufficient to saponify some of the acrylate esters to alkali metal carboxylates and to neutralize the carboxylic groups of the polyacrylate to alkali metal carboxylates so that the saponified polyacrylate polymer has from 30 to 70 weight percent alkali metal carboxylates.

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	Document ID	Title
132	US 4187076 A	Paraquat detection method
133	US 4176667 A	Disposable liquid absorbent p
134	US 4145464 A	Absorbent articles
135	US 4117184 A	Absorbent films and laminates

US-PAT-NO: 4145464

DOCUMENT-IDENTIFIER: US 4145464 A



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## Brief Summary Text - BSTX (7):

It is well known to employ a wicking layer in a disposable diaper for the purpose of enhancing the lateral mobility of body liquids to achieve effective utilization of the absorbent components of said diaper. One such wicking layer is disclosed in U.S. Pat. No. 3,763,863, assigned to Johnson and Johnson. The wicking layer disclosed in that patent is a densified, paper-like layer formed *in situ* on an absorbent batt of loosely compacted fibers by spraying a surface of the batt with moisture, and compressing the batt to densify the moistened surface. This manner of forming the wicking layer is disclosed in detail in U.S. Pat. No. 3,017,304, which is also assigned to Johnson and Johnson.

## United States Patent [19]

[11] 4,145,464

McConnell et al.

[43] Mar. 20, 1979

## [54] ABSORBENT ARTICLES

Primary Examiner—Robert W. Michell

[75] Inventors: Albert L. McConnell, Wallingford; Richard W. Schutte, Newtown Square, both of Pa.

Assistant Examiner—V. Mills  
Attorney, Agent, or Firm—Martin L. Falgout; William J. Foley

[73] Assignee: Scott Paper Company, Philadelphia, Pa.

## [57] ABSTRACT

[21] Appl. No.: 732,776

[22] Filed: Oct. 15, 1976

[31] Int. Cl.: B32B 6/14; B32B 5/16

[32] U.S. Cl.: 428/175; 128/284; 428/283

[38] Field of Search: 128/287; 428/280-284; 428/286-291; 296-305; 321, 340, 171, 215, 167, 244, 333, 361, 332, 910, 292; 19/144.5, 145, 145.3; 15/239 R; 427/334, 343, 302; 5/3, 90, 92, 354, 354 R, 354

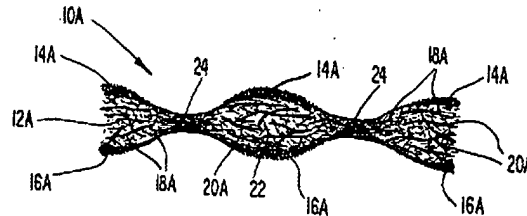
## [56] References Cited

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2,763,847 10/1956 Graham ..... 19/149  
3,105,991 10/1963 Harwood ..... 128/280 R  
3,597,306 8/1971 Menck et al. .... 428/283  
3,612,055 10/1971 Menck et al. .... 128/287  
3,858,016 12/1974 Yamauchi ..... 128/290 R  
3,881,490 2/1975 Weishead et al. .... 128/217  
3,903,489 9/1975 Torr ..... 128/287  
3,908,439 9/1975 Wehrmeyer et al. .... 128/287  
3,918,467 11/1975 Thompson ..... 128/287  
3,934,519 1/1976 Menck et al. .... 128/287  
3,938,322 2/1976 Raphe ..... 128/287  
3,973,087 8/1976 Newman ..... 428/283  
3,974,519 8/1976 Albeckoff ..... 428/283

A nonwoven absorbent structure usable by itself, as a wiper for example, or usable in combination with other elements, such as an internal absorbent member of a disposable diaper. The absorbent structure includes a dry-formed fibrous section in which the average fiber length is about 1.3 millimeters or longer, and a liquid-transmitting layer of particulate material associated with at least one surface of the fibrous section and having a density greater than that of the fibrous section. At least 50% of the particles, by weight, are of a size that will pass through a 48 mesh screen, and the particulate material is chemically bonded together to form the liquid-transmitting layer(s). Particles of the layer(s) are located between fibers at and adjacent the associated surface(s) of the fibrous section to form a zone in which particles and fibers are intermixed. A disposable diaper in accordance with this invention has an internal absorbent member including a dry-formed fibrous section with the above-described layer of particulate material associated with only one surface thereof. The absorbent member is positioned between a liquid-permeable facing sheet and a backing sheet, and the layer of particulate material is associated with the surface of the fibrous section closest the backing sheet.

6 Claims, 6 Drawing Figures



PATENTED JUN 10 1975

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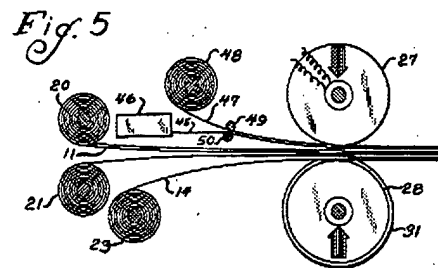
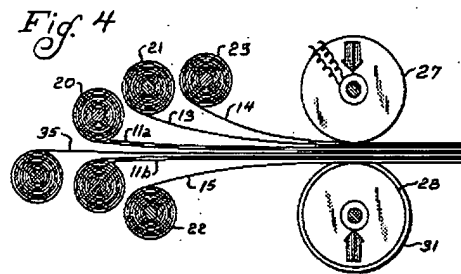
3.888,248

DOCUMENT-IDENTIFIER: US 3888248 A

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----- KWIC -----

Referring now to FIG. 4, if it is desired, the absorbent core material may be made of two layers of needle-punched rayon 11a, 11b or similar material as disclosed above with a central thin layer of tissue paper 35 for "wicking" fluid laterally between the two layers of absorbent core material to spread it out for greater absorption capacity of the pad before saturating it.



US-PAT-NO: 3576039

DOCUMENT-IDENTIFIER: US 3576039 A

TITLE: ABSORBENT UNDERPAD WITH SECURING MEANS

----- KWIC -----

Detailed Description Text - DETX (1):

Referring to the drawings, the underpad is shown as comprising an impervious backing sheet 1, of polyethylene or equivalent plastic material, absorbent means 2 which may conveniently be quantities of hydrous calcium silicate powder enclosed in permeable **paper envelopes, a distribution layer 4, preferably of material having a "wicking"** effect to pass liquids quickly from the upper surface to the absorbent means, and a permeable upper facing 5 which may suitably be a porous nonwoven fabric. The backing sheet 1 is shown at 6 in FIG. 2, as extending around two opposite edges of the underpad, being sealed to the upper facing to form a laterally closed package. The absorbent material envelopes may be adhesively secured at suitable points to the backing sheet 1 and distribution layer 4 in order to retain all elements in their desired respective positions.

US-PAT-NO: 6270873

DOCUMENT-IDENTIFIER: US 6270873 B1

TITLE: Absorbent pad

----- KWIC -----

Detailed Description Text - DETX (10):

In FIG. 3, the bottom sheet 13 is a heavier weight heat fusible paper which is a blend of cellulosic and thermo plastic fibre and can have a weight of between 5-100 g per square meter. Typically, the paper has 22% thermo plastic fibre and 78% cellulose fibre and is resin bonded to have a good wet strength. The **paper has a good wetting and wicking** action to assist in drawing fluids to the superabsorbent polymer.